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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,719	01/17/2002	Satoshi Hasegawa	M2082.0000/P000	3594

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EXAMINER

HARPER, V PAUL

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/046,719	Applicant(s) HASEGAWA, SATOSHI	
	Examiner V. Paul Harper	Art Unit 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/17/02</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The Examiner has considered the references listed in the Information Disclosure Statement dated 01/17/02. A copy of the Information Disclosure Statement is attached to this office action.

Claim Rejections - 35 USC § 103

2. Claims 1, 2, 4, 5, 7, 8, 13, 14, 16, 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over ISO/IEC 11172-3 (as described in the prior art section of the specification, p. 2, Fig. 1 labeled prior art), hereinafter referred to as *Spec_Prior_Art*, in view of Fineberg (U.S. Patent 5,842,162), hereinafter referred to as Fineberg.

Regarding **claim 1**, *Spec_Prior_Art* describes the MPEG1/Audio layer 1 system and includes the following:

- a subband dividing section dividing inputted audio information including a sound signal into a plurality of frequency bands (p. 2, line 15, Fig. 1, item 111);
- a scaling section calculating a scaling factor, which indicates a multiplying power to a reference value, of each subband divided by the subband dividing section into each of the frequency bands, and aligning each dynamic range (Fig. 1, item 112); and

- a coding processing section compressing and coding an output signal from the scaling section by using a MPEG system to output as coded bit stream data (Fig. 1, items 113-115).

But *Spec_Prior_Art* does not specifically teach “further including a feature detection processing section extracting features of the audio information on the basis of the scaling factors outputted from the scaling section.” However, the examiner contends that this concept was well known in the art, as taught by Fineberg

In the same field of endeavor, Fineberg discloses a method for recognizing a sampled sound signal in noise. Fineberg’s method includes feature extraction after bandpass filtering and weighting (col. 3, lines 10-61).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Spec_Prior_Art* by specifically providing the features, as taught by Fineberg, because it is well known in the art at the time of invention for the purpose of identifying the content of the audio signal being processed for marketing, monitoring commercials, improved speech recognition, etc. (Kenyon et al. U.S. Patent 4,843,562, col. 1).

Regarding **claim 2**, *Spec_Prior_Art* in view of Fineberg teaches everything claimed, as applied above (see claim 1). In addition Fineberg teaches “the feature detection processing section includes a means of determining whether or not the audio information is of a voice signal interval on the basis of the scaling factors” (col. 2, lines

34-40, recognition of speech; col. 4, lines 17-27; col. 5, lines 19-37, matched to template).

Regarding **claim 4**, this claim has corresponding limitations similar to the limitations in claim 1, and those limitations are rejected for the same reasons. In addition: "a signal level calculating section inputting thereto the scaling factor of each subband outputted from the scaling section, and calculating a signal level corresponding to the scaling factor; wherein the feature detection processing section extracts features of the audio information on the basis of the signal levels calculated by the signal level calculating section" (Fineberg, Fig. 1, item 110, Fig. 3, cols. 3 and 4; in particular col. 3, lines 31-37).

Regarding **claim 5**, *Spec_Prior_Art* in view of Fineberg teaches everything claimed, as applied above (see claim 4). In addition, Fineberg teaches:

- the signal level calculating section inputs thereto the scaling factors in low-frequency bands outputted from the scaling section within a predetermined period of time to calculate the signal levels (Fig. 1, items 105 and 110, and Fig. 3; sound is sample [over a predetermined period] and the spectral values are determined, Fig. 3, block 2); and
- the feature detection processing section comprises: a calculating means of finding a maximum value and a minimum value of the signal levels calculated by the signal level calculating section (Fig. 2, item 220; col. 4, lines 28-67), and

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- calculating a difference between the maximum value and the minimum value (col. 4, line 45, $\max_j - \min_j$); and
- a determining means of, when the difference value calculated by the calculating means is greater than or equal to a predetermined threshold value, determining that the audio information is of a voice signal interval, on the other hand, when the difference value is less than the threshold value, determining that the audio information is of a signal interval except for voice (col. 5, lines 19-45; a distance metric is computed and compared to templates for a voice and other non voice signals, col. 2, lines 35-37; during comparison the closest current match sets a threshold).

Regarding **claim 7**, this claim has limitations similar to claim 1 and is rejected for the same reasons.

Regarding **claim 8**, this claim has limitations similar to claim 2 and is rejected for the same reasons.

Regarding **claim 13**, this claim has limitations similar to claim 1 and is rejected for the same reasons.

Regarding **claim 14**, this claim has limitations similar to claim 2 and is rejected for the same reasons.

Regarding **claim 16**, this claim has limitations similar to claim 4 and is rejected for the same reasons.

Regarding **claim 17**, this claim has limitations similar to claim 5 and is rejected for the same reasons.

Regarding **claim 19**, this claim has limitations similar to claim 7 and is rejected for the same reasons.

Regarding **claim 20**, this claim has limitations similar to claim 8 and is rejected for the same reasons.

3. Claims 3, 6, 9, 10-12, 15, 18, and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Spec_Prior_Art* in view of Fineberg and well known prior art (MPEP 2144.03).

Regarding **claim 3**, *Spec_Prior_Art* in view of Fineberg teaches everything claimed, as applied above (see claim 1). In addition, Fineberg teaches the detection of noise levels (col. 2, lines 25-40, detects variable noise levels or any type of sound, Fig. 1, item 140, feature vectors [scale factors] are compared), but Fineberg does not specifically teach "wherein the feature detection processing section includes a means of determining whether or not the audio information is of a soundless signal interval on the

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basis of the scaling factors.” However, the examiner takes official notice of the fact that the detection of sound levels so low as to be classified as soundless was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Spec_Prior_Art* in view of Fineberg such soundless intervals can be determined, because such a determination is useful during speech recognition (Fineberg, col. 1, lines 54-61, silence would require no background correction) and sound classification (allowing for the disabling further processing during silence intervals).

Regarding **claim 6**, *Spec_Prior_Art* in view of Fineberg teaches everything claimed, as applied above (see claim 4). In addition, Fineberg teaches:

- the signal level calculating section inputs thereto all of the scaling factors outputted from the scaling section within a predetermined period of time to calculate the signal levels (Fig. 1, items 105 and 110, and Fig. 3; sound is sample [over a predetermined period] and the spectral values are determined, Fig. 3, block 2); and
- the feature detection processing section includes a determining means of, when the signal levels calculated by the signal level calculating section are greater than or equal to a predetermined threshold value (col. 5, lines 19-45; a distance metric is computed and compared to a template for a voice signal, col. 2, lines 35-37),

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- determining that the audio information is of a sound signal interval (col. 5, lines 19-45; a distance metric is computed and compared to a template for a voice signal and other non voice signals, including noise and silence, col. 2, lines 35-37).

But Fineberg does not specifically teach “on the other hand, when the signal levels are less than the threshold value, determining that the audio information is of a soundless signal interval.” However, the examiner takes official notice of the fact that the detection of sound levels so low as to be classified as soundless was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Spec_Prior_Art* in view of Fineberg such soundless intervals can be determined, because such a determination is useful during speech recognition (Fineberg, col. 1, lines 54-61, silence would require no background correction) and sound classification (allowing for the disabling further processing during silence intervals).

Regarding **claim 9**, this claim has limitations similar to claim 3 and is rejected for the same reasons.

Regarding **claim 10**, *Spec_Prior_Art* describes the encoding portion of ISO/IEC 11172-3, but does not specifically describe “a stream dividing section, after inputting thereto bit stream data coded by a MPEG system, dividing the coded bit stream data composed of each subband divided into each frequency band into bit assigning

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information, scaling factor value indicating a multiplying power to a reference value, and coded data in units of each subband; and a decoding processing section executing a decoding process to the coded data divided by the stream dividing section in units of each subband to output as audio information.” However, the examiner takes official notice of the fact that the use of a decoder for the purpose of decoding data encoded according to ISO/IEC 11172-3 was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Spec_Prior_Art* such that a decoder is implemented, because a decoder is part of the ISO/IEC 11172-3 specification and required for the complete processing of the signal.

In addition, *Spec_Prior_Art* does not specifically teach:

- a feature detection processing section extracting features of the audio information on the basis of the scaling factor values outputted from the stream dividing section; and
- a signal level calculating section inputting thereto the scaling factor of each subband outputted from the stream dividing section to calculate a signal level;
- wherein the feature detection processing section extracts features of the audio information on the basis of the signal levels calculated by the signal level calculating section.

However, the examiner contends that these concepts were well known in the art, as taught by Fineberg

In the same field of endeavor, Fineberg discloses a method for recognizing a sampled sound signal in noise. Fineberg's method includes feature extraction after bandpass filtering and weighting (col. 3, lines 10-61; Fig. 1, item 110, Fig. 3, cols. 3 and 4; in particular col. 3, lines 31-37).

Regarding **claim 11**, *Spec_Prior_Art* in view of Fineberg and well known prior art teaches everything claimed, as applied above (see claim 10). In addition, Fineberg further teaches :

- the signal level calculating section inputs thereto the scaling factors in low-frequency bands outputted from the stream dividing section within a predetermined period of time to calculate the signal levels (Fig. 1, items 105 and 110, and Fig. 3; sound is sampled [over a predetermined period] and the spectral values are determined, Fig. 3, block 2); and
- the feature detection processing section comprises: a calculating means of finding a maximum value and a minimum value of the signal levels calculated by the signal level calculating section (Fig. 2, item 220; col. 4, lines 28-67), and
- calculating a difference between the maximum value and the minimum value (col. 4, line 45, $\max_j - \min_j$); and
- a determining means of, when the difference value calculated by the calculating means is greater than or equal to a predetermined threshold value, determining that the audio information is of a voice signal interval, on the other hand, when the difference value is less than the threshold value, determining that the audio information

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is of a signal (col. 5, lines 19-45; a distance metric is computed and compared to a template for a voice and other non voice signals, col. 2, lines 35-37; during comparison the closest current match sets a threshold).

Regarding **claim 12**, *Spec_Prior_Art* in view of Fineberg and well known prior art teaches everything claimed, as applied above (see claim 10). In addition, Fineberg further teaches:

- the signal level calculating section inputs thereto all of the scaling factors outputted from the stream dividing section within a predetermined period of time to calculate the signal levels (Fig. 1, items 105 and 110, and Fig. 3; sound is sample [over a predetermined period] and the spectral values are determined, Fig. 3, block 2); and
- the feature detection processing section includes a determining means of, when the signal levels calculated by the signal level calculating section are greater than or equal to a predetermined threshold value (col. 5, lines 19-45; a distance metric is computed and compared to a template for a voice signal, col. 2, lines 35-37; during comparison the closest current match sets a threshold);
- determining that the audio information is of a sound signal interval (col. 5, lines 19-45; a distance metric is computed and compared to a template for a voice signal and other non voice signals, including noise and silence, col. 2, lines 35-37).

But Fineberg does not specifically teach “determining that the audio information is of a sound signal interval, on the other hand, when the signal levels are less than the threshold value, determining that the audio information is of a soundless signal interval.”

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However, the examiner takes official notice of the fact that the detection of sound levels so low as to be classified as soundless was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Spec_Prior_Art* in view of Fineberg such soundless intervals can be determined, because such a determination is useful during speech recognition (Fineberg, col. 1, lines 54-61, silence would require no background correction) and sound classification (allowing for the disabling further processing during silence intervals).

Regarding **claim 15**, this claim has limitations similar to claim 3 and is rejected for the same reasons.

Regarding **claim 18**, this claim has limitations similar to claim 6 and is rejected for the same reasons.

Regarding **claim 21**, this claim has limitations similar to claim 9 and is rejected for the same reasons.

Regarding **claim 22**, this claim has limitations similar to claim 10 and is rejected for the same reasons.

Regarding **claim 23**, this claim has limitations similar to claim 11 and is rejected for the same reasons.

Regarding **claim 24**, this claim has limitations similar to claim 12 and is rejected for the same reasons.

Citation of Pertinent Art

4. The following prior art made of record but not relied upon is considered pertinent to the applicant's disclosure:

- Keynon et al. (U.S. Patent 4,843,562) disclose a broadcast information classification system and method, and includes a list of reasons why signal classification is important.
- Pitman et al. (U.S. Patent 6,604,072) disclose a feature-based audio content identification system.
- Wu et al. (U.S. Patent 6,006,179) disclose an audio codec with subband vector classification.
- Laroche (U.S. Patent 6,453,252) discloses a process for identifying audio content.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is (571) 272-7605. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

9/01/2005

V. Paul Harper
Patent Examiner
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A handwritten signature in black ink, appearing to read "V. Paul Harper", is written over the printed name and title.